Mrs. Hayden

Name_____ Date_____

202 2.6 Extra Practice

Possible Reasons:
Addition,
Subtraction,
Multiplication,
Distributive,
Reflexive,
Symmetric,
Transitive,
Substitution,
Division,
Def. of midpoint,
Def. of ∠ bisector

State the reason why the following statements are true.

1. _____ If AB = BC, then AB + OR = BC + OR.
2. _____ If AB = BC, then AB - OR = BC - OR.
3. _____ If 5x – 7 = 23, then 5x = 30.
4. _____ If y – 19 = 21, then y = 40.
5. _____ If 7x = 91, then x = 13.
6. _____ If 49 = 147x, then 1/3 = x.
7. _____ If 2x + 6 = x – 2, then x + 6 = -2.
8. _____ If m∠A = 40, then 3•m∠A = 120.
9. _____ If m∠A = m∠B and m∠B = m∠C, then m∠A = m∠C.
10. _____ If ½ WY = ½ RT, and RS = ½ RT, and WS = ½ (WY), then WS = RS.
11. _____ If m∠2 = m∠1, then 5•m∠2 =5•m∠1.
12. _____ If AB = CD, then AB + BC= BC + CD.
13. _____ If m∠1 + m∠2 = 180 and m∠1 = m∠3, then m∠3 + m∠2 = 180.
14. _____ If m∠4 = m∠3, and m∠3 = m∠5, and m∠5 = m∠1, then, m∠4 = m∠1.
15. _____ If m∠5 + m∠6 = 90 and m∠6 = m∠3, then m∠5 + m∠3 = 90.
16. _____ If ½ AB = ½ CD, and EF = ½ AB, then EF = ½ CD.
17. _____ If m∠ABC = m∠1 and m∠1 = m∠GHK, then m∠ABC = m∠GHK
18. _____ If RS = DW, then DW = RS
19. _____ AC = AC.
20. _____ m∠D = m∠D
21. _____ If m∠A = m∠D and m∠D = m∠E, then m∠A = m∠E
22. _____ If CE = BA and BA = ½ (BD), then CE = ½ (BD)

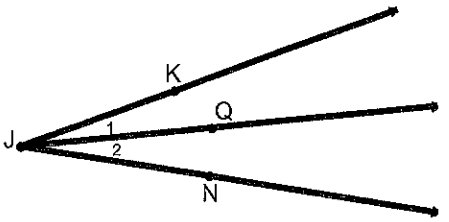
23. _____ If WR = PQ + 2ST, then PQ + 2ST = WR.

24. _____ If AB + BC = BC + CD, and AC = AB + BC, and BD = BC + CD, then AC = BD.

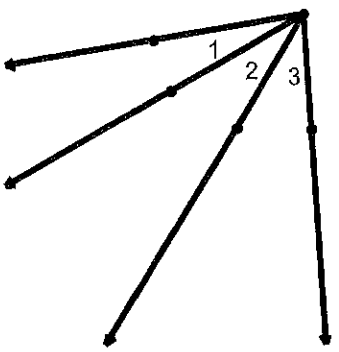
25. _____ If $m\angle 4 + m\angle 5 = 90$ and $m\angle 3 = m\angle 4$, then $m\angle 3 + m\angle 5 = 90$.

State the conclusion that can be drawn from the given information. Give the reason for each conclusion.

26. Given: $\overrightarrow{JQ}$ bisects $\angle KJN$.
Conclusion: _____ ≅ _____
Reason: _____



27. Given: $m\angle 1 = m\angle 2$; $m\angle 2 = m\angle 3$
Conclusion: _____ = _____
Reason: _____



28. Given: M is the midpoint of $\overline{AB}$.
Conclusion: _____ = _____
Reason: _____

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2-6 Skills Practice

Algebraic Proof

Lesson 2-6

State the property that justifies each statement.

1. If $80 = m\angle A$, then $m\angle A = 80$.

2. If $RS = TU$ and $TU = YP$, then $RS = YP$.

3. If $7x = 28$, then $x = 4$.

4. If $VR + TY = EN + TY$, then $VR = EN$.

5. If $m\angle 1 = 30$ and $m\angle 1 = m\angle 2$, then $m\angle 2 = 30$.

Complete the following proof.

6. **Given:** $8x - 5 = 2x + 1$
Prove: $x = 1$
Proof:

Statements	Reasons
a. $8x - 5 = 2x + 1$	a. _____
b. $8x - 5 - 2x = 2x + 1 - 2x$	b. _____
c. _____	c. Substitution Property
d. _____	d. Addition Property
e. $6x = 6$	e. _____
f. $\frac{6x}{6} = \frac{6}{6}$	f. _____
g. _____	g. _____

State the property that justifies each statement.

1. If $m\angle 1 = m\angle 2$, then $m\angle 2 = m\angle 1$.

2. If $m\angle 1 = 90$ and $m\angle 2 = m\angle 1$, then $m\angle 2 = 90$.

3. If $AB = RS$ and $RS = WY$, then $AB = WY$.

4. If $AB = CD$, then $\frac{1}{2}AB = \frac{1}{2}CD$.

5. If $m\angle 1 + m\angle 2 = 110$ and $m\angle 2 = m\angle 3$, then $m\angle 1 + m\angle 3 = 110$.

6. $RS = RS$

7. If $AB = RS$ and $TU = WY$, then $AB + TU = RS + WY$.

8. If $m\angle 1 = m\angle 2$ and $m\angle 2 = m\angle 3$, then $m\angle 1 = m\angle 3$.

9. A formula for the area of a triangle

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2-6 Reading to Learn Mathematics

Algebraic Proof

Pre-Activity **How is mathematical evidence similar to evidence in law?**

Read the introduction to Lesson 2-6 at the top of page 94 in your textbook.

What are some of the things that lawyers might use in presenting their closing arguments to a trial jury in addition to evidence gathered prior to the trial and testimony heard during the trial?

Reading the Lesson

1. Name the property illustrated by each statement.
   - **a.** If $a = 4.75$ and $4.75 = b$, then $a = b$.
   - **b.** If $x = y$, then $x + 8 = y + 8$.
   - **c.** $5(12 + 19) = 5 \cdot 12 + 5 \cdot 19$
   - **d.** If $x = 5$, then x may be replaced with 5 in any equation or expression.
   - **e.** If $x = y$, then $8x = 8y$.
   - **f.** If $x = 23.45$, then $23.45 = x$.
   - **g.** If $5x = 7$, then $x = \frac{7}{5}$.
   - **h.** If $x = 12$, then $x - 3 = 9$.

2. Give the reason for each statement in the following two-column proof.

Given: $5(n - 3) = 4(2n - 7) - 14$

Prove: $n = 9$

Statements	Reasons
1. $5(n - 3) = 4(2n - 7) - 14$	**1.** _____
2. $5n - 15 = 8n - 28 - 14$	**2.** _____
3. $5n - 15 = 8n - 42$	**3.** _____
4. $5n - 15 + 15 = 8n - 42 + 15$	**4.** _____
5. $5n = 8n - 27$	**5.** _____
6. $5n - 8n = 8n - 27 - 8n$	**6.** _____
7. $-3n = -27$	**7.** _____
8. $\frac{-3n}{-3} = \frac{-27}{-3}$	**8.** _____
9. $n = 9$	**9.** _____

Helping You Remember

3. A good way to remember mathematical terms is to relate them to words you already know. Give an everyday word that is related in meaning to the mathematical term *reflexive* and explain how this word can help you to remember the Reflexive Property and to distinguish it from the Symmetric and Transitive Properties.